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WESTMAN CHAMPLIN & KELLY, P.A. SUITE 1400 - INTERNATIONAL CENTRE 900 SECOND AVENUE SOUTH MINNEAPOLIS, MN 55402-3319			EVANISKO, LESLIE J	
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			2854	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,666

Applicant(s)

MEIER ET AL.

Examiner

Leslie J. Evanisko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,8,10-12,14-53,55-91,93-113 and 142-271 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) See Continuation Sheet is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: marked-up copy of Fig. 1 of US 5,555,449

Continuation of Disposition of Claims: Claims rejected are 1,3-5,8,10-12,14-22,25-30,34,35,38-53,55-57,59-71,74-84,88-91,93-100,102-112,142-145,149,150,153-174,176-180,184,185,188-209,211-215,219,220,223-236,238-243,247-258 and 260-270.

Continuation of Disposition of Claims: Claims objected to are 23,24,31-33,36,37,58,72,73,85-87,101,113,146-148,151,152,175,181-183,186,187,210,216-218,221,222,237,244-246,259 and 271.

DETAILED ACTION

1. Applicant is advised that the Notice of Allowance mailed February 2, 2005 is hereby vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. If abandoned, applicant may request refund or credit to a specified Deposit Account.

2. Prosecution on the merits of this application is reopened on claims 1, 3-5, 8, 10-12, 14-91, 93-113, 142-271, the majority of which are considered unpatentable for the reasons indicated below:

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: lever 187 (page 12, line 5), bottom 188 (page 12, line 7), and latch 189 (page 12, line 13), outside surface 214 (page 14, line 2), removable cover 261 (page 18, lines 25-26), and front cover plate 384 (page 27, line 2).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "272" has been used to designate both "active print elements" (see Figures 11-12 and pages 21-22) and "rod" (Figure 3 and page 31, line 7).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
6. The disclosure is objected to because of the following informalities: On page 12, in each of lines 12 and 14, the term "cover 186" should be --cover 168-- since that is how the cover was previously defined on page 11, line 5.

Appropriate correction and/or clarification is required.

Claim Objections

7. Claims 18, 20-24, 26-46, 71-73, 149-150, 169-172, 197-199, 204, 206-207, and 241-271 are objected to because of the following informalities:

With respect to claim 18, it is suggested that the term --the-- be inserted before "supply" in line 2 since the supply and take-up spools have been previously recited in claim 1. Additionally, in line 3 of claim 18, it is suggested that the term "a supply" be deleted and replaced with --the supply-- since the supply of print ribbon was previously recited in claim 1. Similarly, in line 4 of claim 18, it is suggested that the term "a gap" be deleted and replaced with --the gap-- since the gap was also previously recited in claim 1.

With respect to claims 36, 186, and 221, it appears that the term --each-- should be inserted after “banks” in line 4 of each claim to insure the claim language is clear and consistent with the disclosure on page 35, starting at line 20. Similarly, note the term “each” is used in claim 151, which is similar to claims 36, 186, and 221.

With respect to claim 71, the term “a card substrate” is inconsistent with how the card is referred to in claim 1 and makes it somewhat confusing as to whether applicant is intending to refer to a different card than previously recited. To correct this problem, it is suggested that the term “a card substrate” be deleted and replaced with --the card-- to use consistent and clear claim language.

With respect to claim 149, it is noted that the claim is currently dependent upon claim 18 and it appears that perhaps claim 149 was intended to be dependent upon claim 142. Additionally, it appears that the term “detriment” in line 3 is incorrect and should actually be --decrement--.

With respect to claim 169, the term “the ribbon sensor” in line 2 has no proper antecedent basis since the ribbon sensor was previously recited in claim 168 and claim 169 is dependent upon claim 162. To correct this problem, it is suggested that claim 169 be amended to depend upon claim 168 instead of claim 162. Furthermore, in claim 169, the term “the component” has no proper antecedent basis since no component was previously recited. To correct this problem, it is suggested that the term “the component” be deleted and replaced with --a component--.

With respect to claim 170, the term “the gap” has no proper antecedent basis since the gap has not been previously recited in the claims (it is not recited until claim 173).

With respect to claim 171, again the term “the ribbon sensor” has no proper antecedent basis since the ribbon sensor was previously recited in claim 168 and claim 171 is dependent upon claim 162.

With respect to claims 197-199, these claims appear to be modifying the scope of claim 162 rather than further limiting it since claim 162 recites an expansion module arranged in a particular location with respect to the other recited structure and claims 197-199 appear to be modifying that arrangement.

With respect to claim 204, again the term “the ribbon sensor” has no proper antecedent basis since the ribbon sensor was previously recited in claim 203 and claim 204 is dependent upon claim 200. Furthermore, in claim 204, the term “the component” has not proper antecedent basis since no component was previously recited. To correct this problem, it is suggested that the term “the component” be deleted and replaced with --a component--.

With respect to claim 206, again the term “the ribbon sensor” has no proper antecedent basis since the ribbon sensor was previously recited in claim 203 and claim 206 is dependent upon claim 200.

With respect to claim 207, it is noted that this claim is improperly dependent upon itself. It appears that applicant may have intended for claim 207 to depend upon claim 206.

With respect to claim 209, the term “the cleaner roller” has no proper antecedent basis since no cleaner roller was previously recited in the claims.

With respect to claim 241, it is suggested that the term “a card” in line 6 be deleted and replaced with --the card-- since the card was previously recited in line 3.

With respect to claim 251, the term “the ribbon cartridge receiver” has no proper antecedent basis since the ribbon cartridge was previously recited in claim 250 and claim 251 is dependent upon claim 241. To correct this problem, it is suggested that claim 251 be amended to depend upon claim 250.

With respect to claim 253, the term “the ribbon cartridge receiver” has no proper antecedent basis since the ribbon cartridge was previously recited in claim 250 and claim 253 is dependent upon claim 241. To correct this problem, it is suggested that claim 253 be amended to depend upon claim 250.

The above listing are merely examples of the types of problems present in the claims and is not necessarily a complete listing. Applicant should carefully review all of the claims in response to this Office Action and correct any such problems that exist.

Appropriate correction and/or clarification is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3-4, 12, 53, 55, 64-71, and 74 are rejected under 35 U.S.C. 102(b) as being anticipated by Morgavi (US 5,558,449).

Morgavi teaches an identification card printer comprising a card input 34, 34A; a card transport 19, 19A configured to feed a card 33 from the card input 34, 34A along a

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print path (the path defined by 34, 34A, and 39); a printhead 11 below the print path and configured to print an image on a surface of the card 33; a supply of print ribbon 13 extending between supply spool 36A and take-up spool 37A and across a gap (see marked up copy of Figure 1 attached to this Office Action), wherein the printhead 11 is positioned within the gap beneath the print ribbon 13; a ribbon sensor 24A configured to detect ribbon panels of the print ribbon (see column 3, lines 8-9 and column 4, lines 26-27), the ribbon sensor including a component positioned within the gap (again see the marked up copy of Figure 1); and a card output 39 through which the card is discharged.

With respect to claim 3, note the supply and take-up spools 36A, 37A are positioned adjacent opposite sides of the printhead 11 outside of the gap, as shown in the marked-up copy of Figure 1 of Morgavi.

With respect to claim 4, note the supply and take-up spools 36A, 37A of Morgavi are positioned below the print path, as shown in Figure 1.

With respect to claim 12, note Morgavi shows a second ribbon sensor element in Figure 1.

With respect to claim 53, note Morgavi teaches a controller 50 configured to control the card transport (by controlling device 52) and the printhead (by controlling device 54) in response to a print job, as shown in Figure 5 and described in column 4, lines 20-52.

With respect to claim 55, note Morgavi includes a control panel 51 and a controller 50, the control panel 51 having input controls (i.e., the various detection devices) configured to generate input signals (i.e., the detection signals from the various

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detection devices) to the controller 50, wherein the controller 50 controls the printer in accordance with the input signals. Again, attention is invited to Figure 5 and column 4, lines 20-52.

With respect to claim 64, note the print path of Morgavi is substantially flat and positioned above the printhead, as shown in Figure 1.

With respect to claim 65, note the card transport includes feed rollers 19, 19a.

With respect to claim 66, note the printer of Morgavi includes a card sensor 17, 17A as shown in Figure 1 and described in column 3, lines 48-51.

With respect to claim 67, note the print elements on printhead 11 shown in Figure 1 face upward toward the print path.

With respect to claims 68 and 71, note the discussion of the vertical movement of the printheads between a print position and idle position set forth in column 3, line 54 through column 4, line 4 of Morgavi.

With respect to claim 69, note Morgavi teaches a motor 22, a first cam member 25 driven by the motor and a second cam member 26A attached to the printhead, wherein movement of the first cam member by the motor moves the printhead through engagement with the second cam member. Again, attention is invited to column 3, lines 54-66.

With respect to claim 70, note Morgavi teaches a position sensor 29, 29A detecting a position of the printhead.

With respect to claim 74, note Morgavi teaches the printhead 11 is a thermal printhead in column 3, line 8.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi (US 5,558,449) in view of Kohno (US 5,709,485). Morgavi teach an ID card printer having all of the structure as recited with the possible exception of the printer including a removable ribbon cartridge having a housing containing the supply and take-up spools. It is noted that Morgavi appears to at least schematically show a ribbon cartridge type arrangement for holding the supply and take-up spools in Figure 1. Regardless, the use of a removable ribbon

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cartridge having a housing containing the supply and take-up spools in a card printer is well known in the art, as exemplified by Kohno in Figures 1 and 5 and described in column 3, lines 35-45 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ribbon structure of Morgavi including the supply and take-up spools to be arranged in a removable ribbon cartridge as taught by Kohno to simplify the process of replacing of ribbon and to better protect the ribbon from damage caused by inadvertent contact with various parts of the printer.

With respect to claims 15-18 and 82, note the gap is defined by the pair of ribbon guides and the supply and take-up spools are positioned adjacent opposite sides of the printhead and below the print path, as shown in Figure 1 of Morgavi in particular.

With respect to claims 20 and 81, note the cartridge housing of Kohno includes a supply spool enclosure 4, a take-up spool enclosure 4 and a plate 14a, 14b joining the supply and take-up spool enclosures, the supply and take-up spool enclosures being separated by a gap in which the printhead is positioned.

With respect to claims 38 and 76, although Morgavi is silent with respect to whether the printer specifically includes a ribbon cartridge or ribbon cartridge receiver, note Kohno teach a printer housing having a ribbon cartridge receiver 130 for receiving the ribbon cartridge in column 4, lines 59-62. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ribbon cartridge receiver as taught by Kohno in the printer of Morgavi to insure the ink ribbon cartridge is suitably positioned in the printing device during printing.

With respect to claims 39-40, note the printer housing of Morgavi as modified by Kohno would obviously including a "front" cover over the cartridge receiver in that the

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device would clearly include a housing that encloses the cartridge receiver and the cartridge receiver would obviously be accessed through a “front face” of the printer to the extent the term “front face” has been defined in the claim.

With respect to claims 41-42 and 93-94, note the ribbon cartridge receiver and ribbon cartridge of Kohno includes a cartridge receiving guide (i.e., positioning pins 140a-140d) configured to receive a cartridge loading guide (i.e., openings 20a, 20b, 22a, 22b) for vertical support of a front portion of the ribbon cartridge. With respect to claims 42 and 94, note to meet the claimed relationship in these claims would require merely an obvious reversal of parts of the pin/opening structure of Kohno.

With respect to claims 43 and 95, note Kohno teaches the cartridge receiver includes first and second drive shafts 70 receiving the supply and take-up spools 5, 6 in column 5, lines 3-7.

With respect to claims 44-45, note Kohno teach supply and take-up spool enclosures 4 and the cartridge receiver 130 including first and second chambers for receiving the enclosures that substantially conform to the exterior surfaces of the supply and take-up spool enclosures, as shown in Figure 5 in particular.

With respect to claims 77 and 80, note Morgavi teaches a plurality of ribbon sensors 24A.

With respect to claim 98, note Morgavi teaches a controller 50 configured to control the card transport (by controlling device 52) and the printhead (by controlling device 54) in response to a print job, as shown in Figure 5 and described in column 4, lines 20-52.

With respect to claim 99, note Morgavi includes a control panel 51 and a controller 50, the control panel 51 having input controls (i.e., the various detection devices) configured to generate input signals (i.e., the detection signals from the various detection devices) to the controller 50, wherein the controller 50 controls the printer in accordance with the input signals. Again, attention is invited to Figure 5 and column 4, lines 20-52.

With respect to claim 105, note the print path of Morgavi is substantially flat and positioned above the printhead, as shown in Figure 1.

With respect to claim 106, note the card transport of Morgavi includes feed rollers 19, 19a.

With respect to claim 107, note the printer of Morgavi includes a card sensor 17, 17A as shown in Figure 1 and described in column 3, lines 48-51.

With respect to claim 108, note the print elements on printhead 11 shown in Figure 1 face upward toward the print path.

With respect to claims 109 and 112, note the discussion of the vertical movement of the printheads between a print position and idle position set forth in column 3, line 54 through column 4, line 4 of Morgavi.

With respect to claim 110, note Morgavi teaches a motor 22, a first cam member 25 driven by the motor and a second cam member 26A attached to the printhead, wherein movement of the first cam member by the motor moves the printhead through engagement with the second cam member. Again, attention is invited to column 3, lines 54-66.

With respect to claim 111, note Morgavi teaches a position sensor 29, 29A detecting a position of the printhead.

13. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi (US 5,558,449) in view of Shimizu et al. (US 5,079,565). Morgavi teaches an ID card printer having all of the structure as recited, with the possible exception of a component of the ribbon sensor being mounted to the printhead. Shimizu et al. teach a thermal transfer printing apparatus including having a component of a ribbon sensor for detecting ribbon panels of the print ribbon being mounted to the printhead, as shown in Figures 1-2 and 20B and described in column 13, lines 34-59. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ribbon sensor of Morgavi to be arranged such that a component is mounted on the printhead as taught by Shimizu et al. to allow for more accurate sensing of the position of the print ribbon panels or allow for a more compactly arranged print ribbon to be used with the apparatus.

With respect to claim 10, although Morgavi is silent with respect to the particular details of the ribbon sensor and whether it includes an emitter and receiver positioned on opposite sides of the print ribbon, note having a ribbon sensor including an emitter and receiver arrangement as recited is well known in the art as exemplified by Shimizu et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a ribbon sensor including the emitter/receiver arrangement as taught by Shimizu et al. in the device of Morgavi as it would simply require the obvious

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substitution of one known ribbon sensor arrangement for another to provide better color discrimination of the color panels of the ink ribbon.

14. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Shimizu et al. as applied to claims 8 and 10 above, and further in view of Ryczek et al. (US 5,150,174). Morgavi as modified by Shimizu et al. teach a printer having all of the structure as recited, with the possible exception of the emitter having an LED configured to emit light having a wavelength of approximately 470 nanometers. Note Shimizu et al. teach the sensor includes an LED that emits different colors of light in column 13, lines 35-59. Furthermore, Ryczek et al. teach that a color sensor including a blue LED emitting light with a peak amplitude of 470 nanometers is well known in the art. See column 3, line 66 through column 4, line 4. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a blue LED as taught by Ryczek et al. in the device of Morgavi as modified by Shimizu et al. as it would simply require the obvious substitution of one known LED structure for another to better detect the various colors of the ribbon panels.

15. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi (US 5,558,449). Morgavi teach a printer as recited with the exception of the printer gap having the particular size recited. However, the optimum gap size could easily be determined through obvious routine experimentation. Therefore, it would have been obvious to one of ordinary skill in the art to select a gap size of 0.75 inches or less to provide the optimum gap size for clear printing of the ID card surface.

16. Claims 21-22 and 83-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno, as applied to claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 above, and further in view of Maruyama (JP 2002-120446). Morgavi in view of Kohno teaches a printer as recited with the exception of the printing including the ribbon cartridge containing a cleaner roll having a debris-collecting surface. Maruyama teaches a thermal printer including a ribbon cartridge 16 housing a cleaner roll 17 having a debris-collecting surface, as shown in Figures 1-2 and described in the English language abstract. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a cleaner roll as taught by Maruyama in the ribbon cartridge of the printer of Morgavi as modified by Kohno to allow for cleaning of the recording sheet before printing is carried out to remove dust adhering to the substrate and thus provide clear printing.

17. Claims 25 and 59-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi (US 5,558,449) in view of Fukai et al. (US 5,326,179). Morgavi teaches a card printer as recited with the exception of including a card cleaner roller having a debris-collecting surface positioned adjacent a bottom side of the print path between the printhead and the card input. However, the use of a card cleaner roller having a debris-collecting surface positioned adjacent a bottom side of the print path between the printhead and the card input in a ID card printer is well known in the art, as exemplified by the cleaning arrangement shown in Figure 7 and described in column 9, line 22 through column 10, line 36 of Fukai et al. In view of this teaching, it would have been

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obvious to one of ordinary skill in the art to provide a card cleaning arrangement as taught by Fukai et al. in the printer of Morgavi to allow for the debris (such as dust) to be cleaned off of the card before being printed to insure clear and smudge-free printing of the images on the card.

With respect to claim 59, Morgavi teaches a card printer as recited with the exception of including an input hopper configured to contain a stack of cards and present a top card to the card input. Fukai et al. teach it is well known in the art to include an input hopper configured to contain a stack of cards and present a top card to a card input in a card printer. See, in particular, the hopper member 30 shown in Figure 1 and described in column 3, line 56 through column 4, line 13. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide an input hopper as taught by Fukai et al. in the device of Morgavi to provide convenient storage and feeding of the ID cards to the device.

With respect to claim 60, note Fukai et al. teach the stack of cards include a downwardly facing printing surface on which an image is to be printed.

With respect to claims 61 and 62, note Fukai et al. teach a biasing mechanism including a base member 33 supporting the stack of cards 20 and a spring mechanism 32 that applies an upwardly directed force to the base member, whereby the top card of the stack is presented to the card input for feeding along the print path.

With respect to claim 63, note that although Fukai et al. does not specifically teach the input hopper includes a cover, the use of a cover member is an obvious mechanical expedient. Therefore, it would have been obvious to one of ordinary skill in

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the art to provide a cover member over the hopper to better protect the stack of card substrates from dirt and dust.

18. Claims 26-28, 89-91, 142-143, and 153-160 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno, as applied to claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 above, and further in view of Stephenson et al. (US 5,455,617). Morgavi in view of Kohno teach a printer as recited with the exception of having a supply circuit mounted to the ribbon cartridge as recited. However, Stephenson et al. teach having a ribbon cartridge including a supply circuit having a memory containing supply information relating to the supply of print ribbon is well known in the art, as exemplified by the cartridge 30 including the memory 60 shown in Figure 4 and described in columns 4-5 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit including a memory containing supply information as taught by Stephenson et al. in the ribbon cartridge in the printer of Morgavi in view of Kohno to allow for better control of the ribbon cartridge and printer during printing operations.

With respect to claims 27 and 90, note Stephenson et al. teach a printer controller and supply circuit reader to access the supply information in column 4, line 40 through column 5, line 26.

With respect to claims 28 and 91, note Stephenson et al. teach the supply information includes such information as ribbon characteristics and a number of prints remaining in column 4, lines 48-52.

With respect to claims 153-160, note the above comments with respect to claims 38-45.

19. *Please note that it appears that applicant first disclosed the claimed subject matter of claims 29-30, 34-35, 144-145, 149-150, 179-180, 184-185, 214-215, and 219-220 in the present application SN 10/647,666, which has a filing date of 08/25/2003. Thus, since Squires et al. has a publication date 07/10/2003 and a filing date of 12/02/2002, Squires et al. qualifies as prior art for these claims and is being applied as set forth below.*

20. Claims 29 and 144 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno and Stephenson et al., as applied to claims 26-28, 89-91, 142-143, and 153-160 above, and further in view of Squires et al. (US 2003/0128269 A1). Morgavi in view of Kohno and Stephenson et al. teach a printer as recited with the exception of the supply information being encrypted. However, note Squires et al. teach a printer ink cartridge 60 for a thermal printer 80 that includes an identification tag 76 including a memory that contains supply information that includes an encryption string in Figure 6 and column 5, paragraph [0060] in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide information in the supply circuit of Morgavi as modified by Kohno and Stephenson et al. to be encrypted as taught by Squires et al. to provide an ink cartridge with security features that make it more difficult to reproduce or copy the tag.

21. Claims 30, 34-35, 145 and 149-150 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno, as applied to claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 above, and further in view of Squires et al. (US 2003/0128269 A1). Morgavi in view of Kohno teach a printer as recited with the exception of having a supply circuit mounted to the ribbon cartridge and a supply circuit reader as recited. However, Squires et al. teach an ink ribbon cartridge for use with a thermal printer, the ribbon cartridge including a memory containing supply information that has been encrypted by a first encryption method in paragraph [0060].

Furthermore, note an ink cartridge having a supply circuit with a memory including encrypted data as taught by Squires et al. would inherently require a supply circuit reader configured to decrypt the supply information in order to have an operable device. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit including encrypted information along with a supply circuit reader as taught by Squires et al. in the printer of Morgavi as modified by Kohno to provide an ink cartridge with security features that make it more difficult to reproduce or copy the tag.

With respect to claims 34-35 and 149-150, note Squires et al. teach the supply circuit memory includes a value (i.e., a print count) and a supply circuit reader configured to decrement the value contained in the memory in response to use of the ribbon and disable the memory when the value stored therein reaches a predetermined value. See, in particular, paragraph [0060] and Figure 6 of Squires et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a

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supply circuit and reader as taught by Squires et al. in the printer of Morgavi as modified by Kohno to provide for better control of the print ribbon during the printing process.

22. Claims 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno, as applied to claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 above, and further in view of Hamisch, Jr. et al. (US 2002/0172537 A1). Morgavi in view of Kohno teach a printer as recited with the exception of the ink cartridge exterior surfaces of the supply and take-up spool enclosures having different shapes. Hamisch, Jr. et al. teach an ink ribbon cartridge for use in a thermal printer including supply and take-up spool enclosures having different shapes, as shown in Figure 3. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ink ribbon cartridge of Morgavi as modified by Kohno with supply and take-up spool enclosures having different shapes as taught by Hamisch, Jr. et al. to allow a user to easily and accurately mount the cartridge in the printer.

23. Claims 47-52, 162-166, and 197-199 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. (US 5,266,781) in view of Morgavi (US 5,558,449). Warwick et al. teach an identification card printer including a plurality of interconnected modules 44-50 and including a card input 44, card transport configured to feed a card from the card input along a print path, a printer module 46, a card output 49 through which the card is discharged, and an expansion module 45, 47, 48 in line with the print path between the printhead (in printer module 46) and the card input or

card output. Although Warwick et al. does not specifically teach the printer module includes a printhead arranged below the print path, a supply of print ribbon extending between supply and take-up spools, wherein the printhead is positioned beneath the print ribbon, and a ribbon sensor configured to detect ribbon panels of the print ribbon and including a component positioned within the gap between the supply and take-up spools, note Morgavi teaches an identification card printer including a printhead, print ribbon, and ribbon sensor arranged as recited in Figure 1 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a printer module including the arrangement as taught by Morgavi in the printer of Warwick et al. to provide a modular printing arrangement to allow for application specific personalization of the ID card printing machine.

With respect to claim 48, note Warwick et al. teach the use of various “expansion” modules such as magnetic stripe writing module 45, embossing module 47, and foil topping module 48 in column 6, lines 33-51.

With respect to claim 49, note Warwick et al. teach the printer has a housing 60 including openings (i.e. bays) configured to receive each module in column 8, lines 17-42 and shown in Figure 4.

With respect to claims 50-52, 162-165, and 197-199, note Warwick et al. teaches (or at least renders obvious) having an expansion module (including such modules as magnetic stripe writing module 45, embossing module 47, and foil topping module 48) that attached to an end of the printer adjacent the card output 49 and having a card receiver in card hand-off alignment with the card output 49 and a card processing component 50, as shown in Figure 1. With respect to claim 163, although Warwick et al.

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does not specifically teach the card processing component is a card laminator, the use of card laminators is well known in the art and it would have been obvious to one of ordinary skill in the art to arrange the various modules in the printer of Warwick et al. in any desired order to provide a printer configuration as desired to produce the desired effects on the ID cards.

With respect to claim 166, note Morgavi teaches the print ribbon arrangement as set forth in the comments with respect to claim 1.

24. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Ishii (US 5,318,369). Morgavi teaches an ID card printer as recited with the exception of the controller including the use of firmware contained in memory that is executed by the controller. Ishii teaches the use of firmware in memory operated by a thermal printer control system is well known in the art. See, in particular, column 5, lines 46-60 of Ishii. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide firmware as taught by Ishii in the device of Morgavi to better control the printing operation (or halt it) upon detection of a used-up ink ribbon.

25. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Ishii as applied to claim 56 above, and further in view of Forman (US 2002/0118243 A1). Morgavi as modified by Ishii teach a device as recited with the exception of including firmware that is upgradeable. However, updating of firmware is well known in the art as taught by Forman. See paragraph [005] of Forman which gives an example of an inkjet cartridge consumable used to upgrade controller firmware. In

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view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the firmware of Ishii to be upgradeable as taught by Forman in order to have the ability to send a users computer consumable reorder messages as set forth in paragraph [0009] of Forman.

26. Claims 75, 200-203, 205, 208, 238-240 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto et al. (JP 04-105948). Morgavi teaches a printer as recited with the exception of including a printhead that is removable through an opening in the base of the printer. Yamamoto et al. teach it is well known in the art to provide a printhead that can be removed from a printer through an opening in the base, as shown in Figures 1-3 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the printer of Morgavi with a base having an opening and the printhead being removable through the opening to improve operability of the printer device through decreasing the size, weight, and cost of the unit.

With respect to claims 201, 203, 205, and 238-240, note the above comments with respect to claims 1, 3-5, 68-70.

With respect to claims 202 and 208, note although it is not clear whether the device of Morgavi includes a removable ribbon cartridge, note Morgavi appears to at least schematically show a ribbon cartridge type arrangement for holding the supply and take-up spools in Figure 1. Regardless, the use of a removable ribbon cartridge having a housing containing the supply and take-up spools in a card printer is well known in the art, as exemplified by Yamamoto in Figures 3-4 in particular. In view of this teaching, it

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would have been obvious to one of ordinary skill in the art to provide the ribbon structure of Morgavi including the supply and take-up spools to be arranged in a removable ribbon cartridge as taught by Yamamoto to simplify the process of replacing of ribbon and to better protect the ribbon from damage caused by inadvertent contact with various parts of the printer.

27. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno, as applied to claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 above, and further in view of Shimizu et al. (US 5,079,565). Morgavi in view of Kohno teach a printer including a removable ribbon cartridge as recited with the possible exception of the ribbon sensor including an emitter and receiver that are positioned on opposite sides of the print ribbon. Although Morgavi is silent with respect to the particular details of the ribbon sensor and whether it includes an emitter and receiver positioned on opposite sides of the print ribbon, note having a ribbon sensor including an emitter and receiver arrangement as recited is well known in the art as exemplified by Shimizu et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a ribbon sensor including the emitter/receiver arrangement as taught by Shimizu et al. in the device of Morgavi as modified by Kohno as it would simply require the obvious substitution of one known ribbon sensor arrangement for another to provide better color discrimination of the color panels of the ink ribbon.

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28. Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno and Shimizu et al. as applied to claim 78 above, and further in view of Ryczek et al. (US 5,150,174). Morgavi in view of Kohno and Shimizu et al. teach a printer including a removable ink ribbon cartridge and sensor arrangement as recited, with the possible exception of the emitter having an LED configured to emit light having a wavelength of approximately 470 nanometers. Note Shimizu et al. teach the sensor includes an LED that emits different colors of light in column 13, lines 35-59.

Furthermore, Ryczek et al. teach that a color sensor including a blue LED emitting light with a peak amplitude of 470 nanometers is well known in the art. See column 3, line 66 through column 4, line 4. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a blue LED as taught by Ryczek et al. in the device of Morgavi as modified by Kohno and Shimizu et al. as it would simply require the obvious substitution of one known LED structure for another to better detect the various colors of the ribbon panels.

29. Claims 88, 96-97, and 102-104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno, as applied to claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 above, and further in view of Fukai et al. (US 5,326,179). Morgavi in view of Kohno teach a printer including a removable ribbon cartridge as recited with the exception of having a card cleaner roller with a debris-collecting surface positioned adjacent a bottom side of the print path between the printhead and card input. However, the use of a card cleaner roller having a debris-collecting surface positioned adjacent a bottom side of the print path between the

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printhead and the card input in a ID card printer is well known in the art, as exemplified by the cleaning arrangement shown in Figure 7 and described in column 9, line 22 through column 10, line 36 of Fukai et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a card cleaning arrangement as taught by Fukai et al. in the printer of Morgavi as modified by Kohno to allow for the debris (such as dust) to be cleaned off of the card before being printed to insure clear and smudge-free printing of the images on the card.

With respect to claims 96-97, Morgavi in view of Kohno teach a card printer as recited with the exception of including an expansion module in line with the print path between the printhead and the card input or card output. However, Fukai et al. teaches a card printer including having an expansion module 40 such as a data encoder or magnetic stripe writer in line with the print path between the printhead 74 and the card input 30 or card output 80 is well known in the art, as exemplified by Fukai et al. in Figure 1 and described in column 3, lines 47-55. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide an expansion module as taught by Fukai et al. in the printer of Morgavi as modified by Kohno to allow other operations to be conveniently performed on the card during the print process.

With respect to claim 102, Morgavi in view of Kohno teach a card printer as recited with the exception of including an input hopper configured to contain a stack of cards and present a top card to the card input. Fukai et al. teach it is well known in the art to include an input hopper configured to contain a stack of cards and present a top card to a card input in a card printer. See, in particular, the hopper member 30 shown in Figure 1 and described in column 3, line 56 through column 4, line 13. In view of this

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teaching, it would have been obvious to one of ordinary skill in the art to provide an input hopper as taught by Fukai et al. in the device of Morgavi as modified by Kohno to provide convenient storage and feeding of the ID cards to the device.

With respect to claim 103, note Fukai et al. teach the stack of cards include a downwardly facing printing surface on which an image is to be printed.

With respect to claim 104, note Fukai et al. teach a biasing mechanism including a base member 33 supporting the stack of cards 20 and a spring mechanism 32 that applies an upwardly directed force to the base member, whereby the top card of the stack is presented to the card input for feeding along the print path.

30. Claim 100 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno, as applied to claims 5, 14-18, 20, 38-45, 76-77, 80-82, 93-95, 98-99, 105-112 above, and further in view of Ishii (US 5,318,369). Morgavi in view of Kohno teaches a printer having all of the structure as recited, with the exception of including a firmware contained in memory that is executed by the controller. Ishii teaches the use of firmware in memory operated by a thermal printer control system is well known in the art. See, in particular, column 5, lines 46-60 of Ishii. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide firmware as taught by Ishii in the device of Morgavi as modified by Kohno to better control the printing operation (or halt it) upon detection of a used-up ink ribbon.

31. Claim 161 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno and Stephenson et al. as applied to claims 26-28, 89-91, 142-143, and

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153-160 above, and further in view of Hamisch, Jr. et al. (US 2002/0172537 A1).

Morgavi in view of Kohno and Stephenson et al. teach an identification card printer as recited with the exception of the ink cartridge exterior surfaces of the supply and take-up spool enclosures having different shapes. Hamish, Jr. et al. teach an ink ribbon cartridge for use in a thermal printer including supply and take-up spool enclosures having different shapes, as shown in Figure 3. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ink ribbon cartridge of Morgavi as modified by Kohno and Stephenson et al. with supply and take-up spool enclosures having different shapes as taught by Hamisch, Jr. et al. to allow a user to easily and accurately mount the cartridge in the printer.

32. Claims 167-168, 170, 173, 188-195 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi as applied to claims 47-52, 162, 164-166, and 197-199 above, and further in view of Kohno (US 5,709,485). Warwick et al. in view of Morgavi teach an identification card printer having all of the structure as recited with the possible exception of including a removable ribbon cartridge having a housing containing the supply and take-up spools. It is noted that Morgavi appears to at least schematically show a ribbon cartridge type arrangement for holding the supply and take-up spools in Figure 1. Regardless, the use of a removable ribbon cartridge having a housing containing the supply and take-up spools in a card printer is well known in the art, as exemplified by Kohno in Figures 1 and 5 and described in column 3, lines 35-45 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the printer of Warwick et al. including the printer module

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structure of Morgavi including the supply and take-up spools to be arranged in a removable ribbon cartridge as taught by Kohno to simplify the process of replacing of ribbon and to better protect the ribbon from damage caused by inadvertent contact with various parts of the printer.

With respect to claims 168 and 170, note Morgavi teaches a ribbon sensor 24A positioned within the gap between the supply and take-up spools and configured to detect ribbon panels of the print ribbon (see column 3, lines 8-9 and column 4, lines 26-27).

With respect to claims 188-195, note the above comments with respect to claims 38-45 and 153-160.

33. Claim 169 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi, as applied to claims 47-52, 162, 164-166, and 197-199 above, and further in view of Shimizu et al. (US 5,079,565). Warwick et al. in view of Morgavi teach an identification card printer having all of the structure as recited with the exception of the component of the ribbon sensor being mounted to the printhead. Shimizu et al. teach a thermal transfer printing apparatus including having a component of a ribbon sensor for detecting ribbon panels of the print ribbon being mounted to the printhead, as shown in Figures 1-2 and 20B and described in column 13, lines 34-59. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ribbon sensor in the printhead of Warwick et al. as modified by Morgavi to be arranged such that a component is mounted on the printhead as taught by Shimizu et

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al. to allow for more accurate sensing of the position of the print ribbon panels or allow for a more compactly arranged print ribbon to be used with the apparatus.

34. Claim 171 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi and Kohno as applied to claims 167-168, 170, 173, and 188-195 above, and further in view of Shimizu (US 5,079,565). Warwick et al. in view of Morgavi and Kohno teach an identification card printer having all of the structure as recited with the possible exception of the ribbon sensor including an emitter and receiver positioned on opposite sides of the print ribbon. Although Morgavi is silent with respect to the particular details of the ribbon sensor and whether it includes an emitter and receiver positioned on opposite sides of the print ribbon, note having a ribbon sensor including an emitter and receiver arrangement as recited is well known in the art as exemplified by Shimizu et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a ribbon sensor including the emitter/receiver arrangement as taught by Shimizu et al. in the device of Warwick et al. as modified by Morgavi and Kohno, as it would simply require the obvious substitution of one known ribbon sensor arrangement for another to provide better color discrimination of the color panels of the ink ribbon.

35. Claim 172 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi, Kohno, and Shimizu as applied to claim 171 above, and further in view of Ryczek (US 5,150,174). Warwick et al. in view of Morgavi, Kohno, and Shimizu et al. teach a printer having all of the structure as recited, with the possible

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exception of the emitter having an LED configured to emit light having a wavelength of approximately 470 nanometers. Note Shimizu et al. teach the sensor includes an LED that emits different colors of light in column 13, lines 35-59. Furthermore, Ryczek et al. teach that a color sensor including a blue LED emitting light with a peak amplitude of 470 nanometers is well known in the art. See column 3, line 66 through column 4, line 4. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a blue LED as taught by Ryczek et al. in the device of Warwick et al. as modified by Morgavi, Kohno, and Shimizu et al., as it would simply require the obvious substitution of one known LED structure for another to better detect the various colors of the ribbon panels.

36. Claim 174 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi and Kohno as applied to claims 167-168, 170, 173, and 188-195 above, and further in view of Murayama (JP 2002-120446). Warwick et al. in view of Morgavi and Kohno teach a printer as recited with the exception of the printing including the ribbon cartridge containing a cleaner roll having a debris-collecting surface. Maruyama teaches a thermal printer including a ribbon cartridge 16 housing a cleaner roll 17 having a debris-collecting surface, as shown in Figures 1-2 and described in the English language abstract. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a cleaner roll as taught by Maruyama in the ribbon cartridge of the printer of Warwick et al. as modified by Morgavi and Kohno to allow for cleaning of the recording sheet before printing is carried out to remove dust adhering to the substrate and thus provide clear printing.

37. Claims 176-178 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi and Kohno as applied to claims 167-168, 170, 173, and 188-195 above, and further in view of Stephenson et al. (US 5,455,617). Warwick et al. in view of Morgavi and Kohno teach a printer as recited with the exception of having a supply circuit mounted to the ribbon cartridge as recited. However, Stephenson et al. teach having a ribbon cartridge including a supply circuit having a memory containing supply information relating to the supply of print ribbon is well known in the art, as exemplified by the cartridge 30 including the memory 60 shown in Figure 4 and described in columns 4-5 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit including a memory containing supply information as taught by Stephenson et al. in the printer ribbon cartridge of Warwick et al. as modified by Morgavi and Kohno to allow for better control of the ribbon cartridge and printer during printing operations.

With respect to claim 177, note Stephenson et al. teach a printer controller and supply circuit reader to access the supply information in column 4, line 40 through column 5, line 26.

With respect to claim 178, note Stephenson et al. teach the supply information includes such information as ribbon characteristics and a number of prints remaining in column 4, lines 48-52.

38. Claims 179-180 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi, Kohno, and Stephenson et al. as applied to claims

176-178 above, and further in view of Squires et al. (US 2003/0128269 A1). Morgavi in view of Kohno teach a printer as recited with the exception of having a supply circuit mounted to the ribbon cartridge as recited. However, Squires et al. teach an ink ribbon cartridge for use with a thermal printer, the ribbon cartridge including a memory containing a value (i.e., a print count) and a supply circuit reader configured to decrement the value contained in the memory in response to use of the ribbon and disable the memory when the value stored therein reaches a predetermined value. See, in particular, paragraph [0060] and Figure 6 of Squires et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit and reader as taught by Squires et al. in the printer of Warwick et al. as modified by Morgavi, Kohno, and Stephenson et al. to provide for better control of the print ribbon during the printing process.

With respect to claim 180, note an ink cartridge having a supply circuit with a memory including encrypted data as taught by Squires et al. would inherently require a supply circuit reader configured to decrypt the supply information in order to have an operable device.

39. Claims 184-185 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi and Kohno as applied to claims 167-168, 170, 173, and 188-195 above, and further in view of Squires et al. (US 2003/0128269 A1). Warwick et al. in view of Morgavi and Kohno teach a printer as recited with the exception of having a supply circuit mounted to the ribbon cartridge as recited. However, Squires et al. teach an ink ribbon cartridge for use with a thermal printer, the ribbon cartridge

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including a memory containing a value (i.e., a print count) and a supply circuit reader configured to decrement the value contained in the memory in response to use of the ribbon and disable the memory when the value stored therein reaches a predetermined value. See, in particular, paragraph [0060] and Figure 6 of Squires et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit and reader as taught by Squires et al. in the printer of Warwick et al. as modified by Morgavi and Kohno to provide for better control of the print ribbon during the printing process.

40. Claim 196 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi and Kohno as applied to claims 167-168, 170, 173, and 188-195 above, and further in view of Hamisch, Jr. et al. (US 2002/0172537 A1). Warwick et al. in view of Morgavi and Kohno teach an identification card printer as recited with the exception of the ink cartridge exterior surfaces of the supply and take-up spool enclosures having different shapes. Hamish, Jr. et al. teach an ink ribbon cartridge for use in a thermal printer including supply and take-up spool enclosures having different shapes, as shown in Figure 3. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ink ribbon cartridge of Warwick et al. as modified by Morgavi and Kohno with supply and take-up spool enclosures having different shapes as taught by Hamisch, Jr. et al. to allow a user to easily and accurately mount the cartridge in the printer.

41. Claims 204 and 206 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi (US 5,558,449) in view of Yamamoto (JP 04-105948) as applied to claims 75, 200-203, 205, 208, and 238-240, and further in view of Shimizu et al. (US 5,079,565). Morgavi in view of Yamamoto teaches an identification printer having all of the structure as recited with the exception of a component of the ribbon sensor being mounted to the printhead. Shimizu et al. teach a thermal transfer printing apparatus including having a component of a ribbon sensor for detecting ribbon panels of the print ribbon being mounted to the printhead, as shown in Figures 1-2 and 20B and described in column 13, lines 34-59. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ribbon sensor of Morgavi as modified by Yamamoto to be arranged such that a component is mounted on the printhead as taught by Shimizu et al. to allow for more accurate sensing of the position of the print ribbon panels or allow for a more compactly arranged print ribbon to be used with the apparatus.

With respect to claim 206, although Morgavi is silent with respect to the particular details of the ribbon sensor and whether it includes an emitter and receiver positioned on opposite sides of the print ribbon, note having a ribbon sensor including an emitter and receiver arrangement as recited is well known in the art as exemplified by Shimizu et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a ribbon sensor including the emitter/receiver arrangement as taught by Shimizu et al. in the device of Morgavi as modified by Yamamoto, as it would simply require the obvious substitution of one known ribbon sensor arrangement for another to provide better color discrimination of the color panels of the ink ribbon.

42. Claim 207 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto (JP 04-105948) and Shimizu et al. as applied to claims 204 and 206, and further in view of Ryczek et al. (US 5,150,174). Morgavi in view of Yamamoto and Shimizu et al. teach an identification card printer having all of the structure as recited with the possible exception of the emitter having an LED configured to emit light having a wavelength of approximately 470 nanometers. Note Shimizu et al. teach the sensor includes an LED that emits different colors of light in column 13, lines 35-59. Furthermore, Ryczek et al. teach that a color sensor including a blue LED emitting light with a peak amplitude of 470 nanometers is well known in the art. See column 3, line 66 through column 4, line 4. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a blue LED as taught by Ryczek et al. in the device of Morgavi as modified by Yamamoto and Shimizu et al., as it would simply require the obvious substitution of one known LED structure for another to better detect the various colors of the ribbon panels.

43. Claims 209 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto (JP 04-105948) as applied to claims 75, 200-203, 205, 208, and 238-240, and further in view of Maruyama (JP 2002-120446). Morgavi in view of Yamamoto teach an identification card printer having all the structure as recited with the exception of the cartridge including a cleaner roller supported by the cartridge housing. Maruyama teaches a thermal printer including a ribbon cartridge 16 housing a cleaner roll 17 having a debris-collecting surface, as shown in Figures 1-2 and described

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in the English language abstract. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a cleaner roll as taught by Maruyama in the ribbon cartridge of the printer of Morgavi as modified by Yamamoto to allow for cleaning of the recording sheet before printing is carried out to remove dust adhering to the substrate and thus provide clear printing.

44. Claims 211-213 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto (JP 04-105948) as applied to claims 75, 200-203, 205, 208, and 238-240, and further in view of Stephenson et al. (US 5,455,617). Morgavi in view of Yamamoto teach an identification card printer having all of the structure as recited with the exception of the ribbon cartridge including a supply circuit and memory. However, Stephenson et al. teach having a ribbon cartridge including a supply circuit having a memory containing supply information relating to the supply of print ribbon is well known in the art, as exemplified by the cartridge 30 including the memory 60 shown in Figure 4 and described in columns 4-5 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit including a memory containing supply information as taught by Stephenson et al. in the ribbon cartridge in the printer of Morgavi in view of Yamamoto to allow for better control of the ribbon cartridge and printer during printing operations.

With respect to claim 212, note Stephenson et al. teach a printer controller and supply circuit reader to access the supply information in column 4, line 40 through column 5, line 26.

With respect to claim 213, note Stephenson et al. teach the supply information includes such information as ribbon characteristics and a number of prints remaining in column 4, lines 48-52.

45. Claims 214 and 215 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto (JP 04-105948) and Stephenson et al. as applied to claims 211-213, and further in view of Squires et al (US 2003/0128269). Morgavi in view of Yamamoto and Stephenson et al. teach an identification card printer having all of the structure as recited with the exception of the supply information being encrypted. However, Squires et al. teach a printer ink cartridge 60 for a thermal printer 80 that includes an identification tag 76 including a memory that contains supply information that includes an encryption string in Figure 6 and column 5, paragraph [0060] in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide information in the supply circuit of Morgavi as modified by Yamamoto and Stephenson et al. to be encrypted as taught by Squires et al. to provide an ink cartridge with security features that make it more difficult to reproduce or copy the tag.

46. With respect to claim 215, note Squires et al. teach an ink ribbon cartridge for use with a thermal printer, the ribbon cartridge including a memory containing supply information that has been encrypted by a first encryption method in paragraph [0060]. Furthermore, note an ink cartridge having a supply circuit with a memory including encrypted data as taught by Squires et al. would inherently require a supply circuit reader configured to decrypt the supply information in order to have an operable device.

In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit including encrypted information along with a supply circuit reader as taught by Squires et al. in the printer of Morgavi as modified by Yamamoto and Stephenson et al. to provide an ink cartridge with security features that make it more difficult to reproduce or copy the tag.

47. Claims 219-220 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto (JP 04-105948) as applied to claims 75, 200-203, 205, 208, and 238-240, and further in view of Squires et al. (US 2003/0128269). Morgavi in view of Yamamoto teach an identification card printer having all of the structure as recited with the exception of the ribbon cartridge including a supply circuit with a memory as recited. However, Squires et al. teach the supply circuit memory includes a value (i.e., a print count) and a supply circuit reader configured to decrement the value contained in the memory in response to use of the ribbon and disable the memory when the value stored therein reaches a predetermined value. See, in particular, paragraph [0060] and Figure 6 of Squires et al. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit and reader as taught by Squires et al. in the printer of Morgavi as modified by Yamamoto to provide for better control of the print ribbon during the printing process.

48. Claims 223-230 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto (JP 04-105948) as applied to claims 75, 200-203, 205, 208, and 238-240, and further in view of Kohno (US 5,709,485). Morgavi in view of

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Yamamoto teach an identification card printer having all of the structure as recited with the exception of providing the details of whether the printer housing includes a ribbon cartridge receiver as recited. Note Kohno teaches an identification card printer including having a printer housing having a ribbon cartridge receiver configured to receive the ribbon cartridge is well known in the art. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the printer of Morgavi as modified by Yamamoto with a ribbon cartridge receiver as taught by Kohno to provide the ribbon cartridge is securely positioned within the printer housing and is easily accessible for easy replacement or exchange.

With respect to claims 224-230, note the above comments with respect to claims 39-45.

49. Claim 231 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Yamamoto (JP 04-105948) and Kohno as applied to claims 223-230, and further in view of Hamisch, Jr. et al. (US 2002/0172537 A1). Morgavi in view of Yamamoto and Kohno teach an identification card printer having all of the structure as recited with the exception of the exterior surfaces of the supply and take-up spool enclosures having different shapes. Hamisch, Jr. et al. teach an ink ribbon cartridge for use in a thermal printer including supply and take-up spool enclosures having different shapes, as shown in Figure 3. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ink ribbon cartridge of Morgavi as modified by Yamamoto and Kohno with supply and take-up spool enclosures having different

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shapes as taught by Hamisch, Jr. et al. to allow a user to easily and accurately mount the cartridge in the printer.

50. Claims 232-236 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warwick et al. in view of Morgavi and Yamamoto (JP 04-105948). Warwick et al. teach an identification card printer including a plurality of interconnected modules 44-50 and including a card input 44, card transport configured to feed a card from the card input along a print path, a printer module 46, a card output 49 through which the card is discharged, and an expansion module 45, 47, 48 in line with the print path between the printhead (in printer module 46) and the card input or card output. Although Warwick et al. does not specifically teach the printer module includes a printhead arranged below the print path, a supply of print ribbon extending between supply and take-up spools, wherein the printhead is positioned beneath the print ribbon, and a ribbon sensor configured to detect ribbon panels of the print ribbon and including a component positioned within the gap between the supply and take-up spools, note Morgavi teaches an identification card printer including a printhead, print ribbon, and ribbon sensor arranged as recited in Figure 1 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a printer module including the arrangement as taught by Morgavi in the printer of Warwick et al. to provide a modular printing arrangement to allow for application specific personalization of the ID card printing machine. Furthermore, although Warwick et al. and Morgavi are silent with respect to whether the printhead is removable through an opening in the base, note Yamamoto et al. teach it is well known in the art to provide a printhead that can be

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removed from a printer through an opening in the base, as shown in Figures 1-3 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the printer of Warwick et al. and Morgavi with a base having an opening and the printhead being removable through the opening to improve operability of the printer device through decreasing the size, weight, and cost of the unit.

With respect to claims 233-236, note the above comment with respect to claims 48-52.

51. Claims 241-243, 250-253, 256-257, and 263-270 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi (US 5,558,449) in view of Kohno (US 5,709,485) and Maruyama (JP 2002-120446). Morgavi teach an ID card printer having all of the structure as recited with the possible exception of the printer including a removable ribbon cartridge having a housing containing the supply and take-up spools. It is noted that Morgavi appears to at least schematically show a ribbon cartridge type arrangement for holding the supply and take-up spools in Figure 1. Regardless, the use of a removable ribbon cartridge having a housing containing the supply and take-up spools in a card printer is well known in the art, as exemplified by Kohno in Figures 1 and 5 and described in column 3, lines 35-45 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the ribbon structure of Morgavi including the supply and take-up spools to be arranged in a removable ribbon cartridge as taught by Kohno to simplify the process of replacing of ribbon and to better protect the ribbon from damage caused by inadvertent contact with various parts of the printer. Furthermore, although Morgavi and Kohno do not teach the

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ribbon cartridge contains a cleaner roll having a debris-collecting surface, Maruyama teaches a thermal printer including a ribbon cartridge 16 housing a cleaner roll 17 having a debris-collecting surface is well known in the art, as shown in Figures 1-2 and described in the English language abstract of Maruyama. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a cleaner roll as taught by Maruyama in the ribbon cartridge of the printer of Morgavi as modified by Kohno to allow for cleaning of the recording sheet before printing is carried out to remove dust adhering to the substrate and thus provide clear printing.

With respect to claim 242, note the previous comments with respect to claims 18-20.

With respect to claim 243, note the previous comments with respect to claims 4 and 17.

With respect to claims 250-253, note the previous comments with respect to claims 38 and 41-43.

With respect to claims 256-257, note the previous comments with respect to claims 53 and 55.

With respect to claims 263-270, note the previous comments with respect to claims 64-71.

52. Claims 247-249 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno and Maruyama as applied to claims 241-243, 250-253, 256-257, and 263-270 above, and further in view of Stephenson et al. (US 5,455,617).

Morgavi in view of Kohno and Maruyama teach an identification printer having all of

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the structure as recited with the exception of the ribbon cartridge including a supply circuit and a memory mounted to the ribbon cartridge. However, Stephenson et al. teach having a ribbon cartridge including a supply circuit having a memory containing supply information relating to the supply of print ribbon is well known in the art, as exemplified by the cartridge 30 including the memory 60 shown in Figure 4 and described in columns 4-5 in particular. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide a supply circuit including a memory containing supply information as taught by Stephenson et al. in the ribbon cartridge in the printer of Morgavi as modified by Kohno and Maruyama to allow for better control of the ribbon cartridge and printer during printing operations.

With respect to claims 248, note Stephenson et al. teach a printer controller and supply circuit reader to access the supply information in column 4, line 40 through column 5, line 26.

With respect to claim 249, note Stephenson et al. teach the supply information includes such information as ribbon characteristics and a number of prints remaining in column 4, lines 48-52.

53. Claims 254-255 and 260-262 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno and Maruyama as applied to claims 241-243, 250-253, 256-257, and 263-270 above, and further in view of Fukai et al. (US 5,326,179). Morgavi in view of Kohno and Maruyama teach an identification card printer having all of the structure as recited with the exception of including an expansion module such as a data encoder or a magnetic stripe writer in line with the

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print path between the printhead and the card input or card output. However, Fukai et al. teaches a card printer including having an expansion module 40 such as a data encoder or magnetic stripe writer in line with the print path between the printhead 74 and the card input 30 or card output 80 is well known in the art, as exemplified by Fukai et al. in Figure 1 and described in column 3, lines 47-55. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide an expansion module as taught by Fukai et al. in the printer of Morgavi as modified by Kohno and Maruyama to allow other operations to be conveniently performed on the card during the print process.

With respect to claim 260, Morgavi in view of Kohno and Maruyama teach an identification printer having all of the structure as recited with the exception of including an input hopper configured to contain a stack of cards and present a top card to the card input. Fukai et al. teach it is well known in the art to include an input hopper configured to contain a stack of cards and present a top card to a card input in a card printer. See, in particular, the hopper member 30 shown in Figure 1 and described in column 3, line 56 through column 4, line 13. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide an input hopper as taught by Fukai et al. in the device of Morgavi as modified by Kohno and Maruyama to provide convenient storage and feeding of the ID cards to the device.

With respect to claim 261, note Fukai et al. teach the stack of cards include a downwardly facing printing surface on which an image is to be printed.

With respect to claims 262, note Fukai et al. teach a biasing mechanism including a base member 33 supporting the stack of cards 20 and a spring mechanism 32 that

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applies an upwardly directed force to the base member, whereby the top card of the stack is presented to the card input for feeding along the print path.

54. Claim 258 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi in view of Kohno and Maruyama as applied to claims 241-243, 250-253, 256-257, and 263-270 above, and further in view of Ishii (US 5,318,369). Morgavi in view of Kohno and Maruyama teach an identification printer having all of the structure as recited with the exception of the controller including the use of firmware contained in memory that is executed by the controller. Ishii teaches the use of firmware in memory operated by a thermal printer control system is well known in the art. See, in particular, column 5, lines 46-60 of Ishii. In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide firmware as taught by Ishii in the device of Morgavi as modified by Kohno and Maruyama to better control the printing operation (or halt it) upon detection of a used-up ink ribbon.

Double Patenting

55. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

56. Claims 76-78, 83, 89, 96-97, 102, and 109-110 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 11/135619. Although the conflicting claims are not identical, they are not patentably distinct from each other because they each encompass a card printer comprising an input, a transport, a printhead, a removable ribbon cartridge, and an output.

With respect to claim 77, note claim 2 of Application No. 11/135619.

With respect to claim 78, note claim 3 of Application No. 11/135619.

With respect to claim 83, note claim 4 of Application No. 11/135619.

With respect to claim 89, note claim 5 of Application No. 11/135619.

With respect to claims 96-97, note claim 6 of Application No. 11/135619.

With respect to claim 102, note claim 7 of Application No. 11/135619.

With respect to claim 109-110, note claim 9 of Application No. 11/135619.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

57. Claims 23-24, 31-33, 36-37, 58, 72-73, 85-87, 101, 113, 146-148, 151-152, 175, 181-183, 186-187, 210, 216-218, 221-222, 237, 244-246, 259 and 271 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Note the various claim objections set forth above must also be overcome to the satisfaction of the Examiner.

58. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 23-24, 85-87, 175, 210, and 244-246 in particular, the prior art of record fails to teach or fairly suggest an identification card printer having all of the structure as recited, in combination with and particularly including, a card cleaner roller having a debris-collecting surface configured to engage the debris-collecting surface of the cleaner roller and remove debris from the surface of the card.

With respect to claims 31-33, 146-148, 181-183, and 216-218 in particular, the prior art of record fails to teach or fairly suggest an identification card printer having all of the structure as recited, in combination with and particularly including, the supply circuit reader is configured to re-encrypt the supply information in accordance with a second encryption method.

With respect to claims 36-37, 151-152, 186-187, and 221-222 in particular, the prior art of record fails to teach or fairly suggest an identification card printer having all

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of the structure as recited, in combination with and particularly including, a supply circuit including a memory and a plurality of memory banks each containing a value and a supply circuit reader configured to decrement the values in the memory banks in response to use of the ribbon, and disable each memory bank when the value stored therein reaches a predetermined end value.

With respect to claims 58, 101, 237, and 259 in particular, the prior art of record fails to teach or fairly suggest an identification card printer having all of the structure as recited, in combination with and particularly including, a firmware loading module configured to decrypt and load encrypted firmware updates.

With respect to claims 72-73, 113, and 271 in particular, the prior art of record fails to teach or fairly suggest an identification card printer having all of the structure as recited, in combination with and particularly including, the printhead being moved between three vertical positions, including a print position, idle position, and full-down position.

Conclusion

59. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Silverbrook (US 6,362,868) and Nubson et al. (US 5,037,216) each teach a printer having obvious similarities to the claimed subject matter.


60. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Leslie J. Evanisko** whose telephone number is **(571) 272-2161**. The examiner can normally be reached on M-Th 7:30 am-6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew H. Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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Leslie J. Evanisko
Primary Examiner
Art Unit 2854

lje
March 29, 2006

